

# Chapter 1 General Procedures

This chapter offers an introduction to the MicroStation working environment you'll find at the Maine Department of Transportation. If you are new to MicroStation, you'll find some helpful references about tool locations and document management. If you have previously used MicroStation, you'll also find some helpful hints, since we have customized our user interface to increase productivity.

# INTERFACE OVERVIEW

## **GUI: THE GRAPHICAL USER INTERFACE**

There are a couple of places that MicroStation will offer instructions, read out data, and generally try to be helpful. These are the **Tool Settings Window**, **Status Bar** and **Message Center**. Make sure you know where these things are and check back with them often.

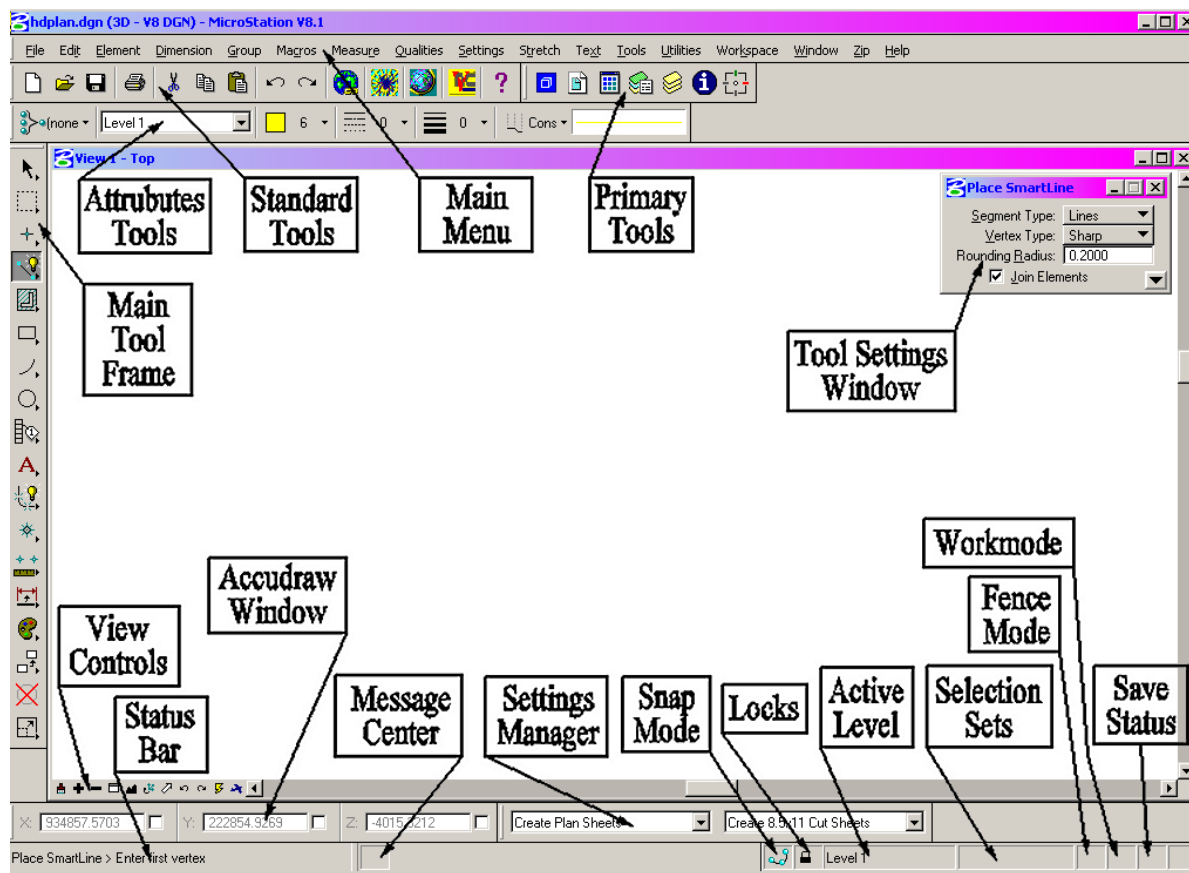


Figure 1-1: Interface Components

### **How do I get back Tool Bars that are missing?**

If any aspect of the GUI has been closed, you're probably going to need to get it back. Every item outlined above can be closed except for the **Menus** and the **Status Bar**.

The **Attributes Tools** can be opened from the **Menus** by choosing **Tools>Attributes**.

The **Primary Tools** can be opened from the **Menus** by choosing **Tools > Primary**.

The **Standard Tools** can be opened from the **Menus** by choosing **Tools > Standard**.

The **Main Tool Frame** can be opened from the **Menus** by choosing **Tools > Main > Main**.

The **Tool Settings Window** can be opened by simply activating any command from a toolbox or menu.

The **Window Open/Close** button bar is used to open and close MicroStation Views. (The

words “View” and “Window” are used interchangeably in MicroStation.) This button bar can be activated from the **Menus** by choosing **Window > Views > Dialog**.

The *Settings Manager* can be opened from the Menus by selecting **Settings > Manage**. Task-specific *Settings Managers* can be opened from **Settings > DOT SetMgrs**.

With our in-house customization we have specific settings managers auto loading based on file naming convention.

**Accudraw** can be opened by pressing the **Toggle Accudraw** button on the **Primary Tools** bar.



Figure 1-2: Accudraw Button

## How do I retrieve missing tools on a Tool Bar?

I have my tool bar up but it is not showing all the tools. Well in MicroStation V8 they have made the GUI more windows oriented. You can now right click on any tool bar and remove from display any of the dockable tools.

## **MOUSEING**

### **Standard Buttons**

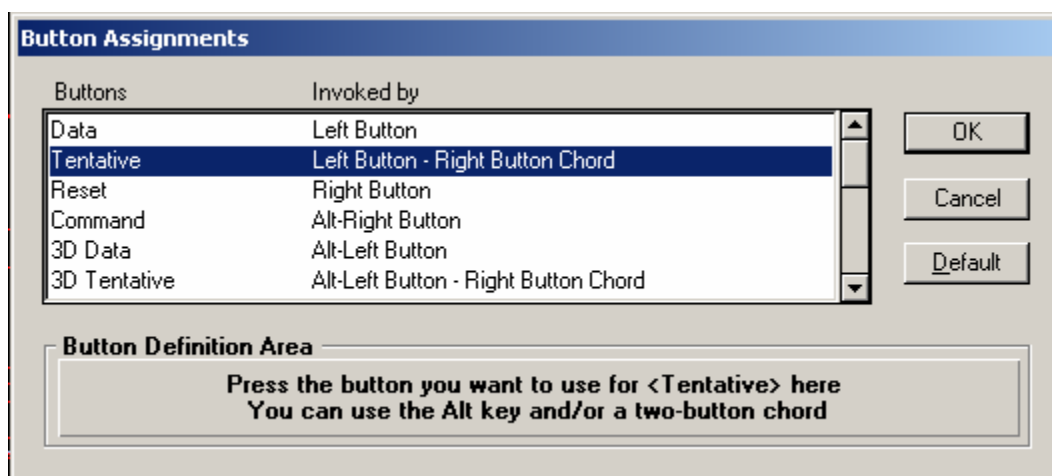
Remember that the three buttons of the mouse are called **Data**, **Tentative**, and **Reset**. Here is a brief table of mouse button functions:

Left Button	Middle Button	Right Button
Data	Tentative	Reset
Accept	Snap	Reject
Yes	Maybe	No

### **Troubleshoot the Middle Button**

It is possible that your Middle Button may not be snapping.

From your main menu, select **Workspace > Button Assignments**. This will open the **Button Assignments** dialog (Figure 1-3).



*Figure 1-3: No Middle Button Assigned*

Highlight the **Tentative** row. Notice the **Invoked by** column is not set to **Middle Button**.

Put your cursor in the **Button Definition Area** and hit your middle button. You should see the **Invoked by** column change to **Middle Button** (Figure 1-4)

- ♪ If you are using a 2 button mouse you can setup the tentative by following this same procedure and either holding the **Alt** button when hitting your **Left** mouse button or hitting your **Left** and **Right** mouse buttons simultaneously in the **Button Definition Area**.

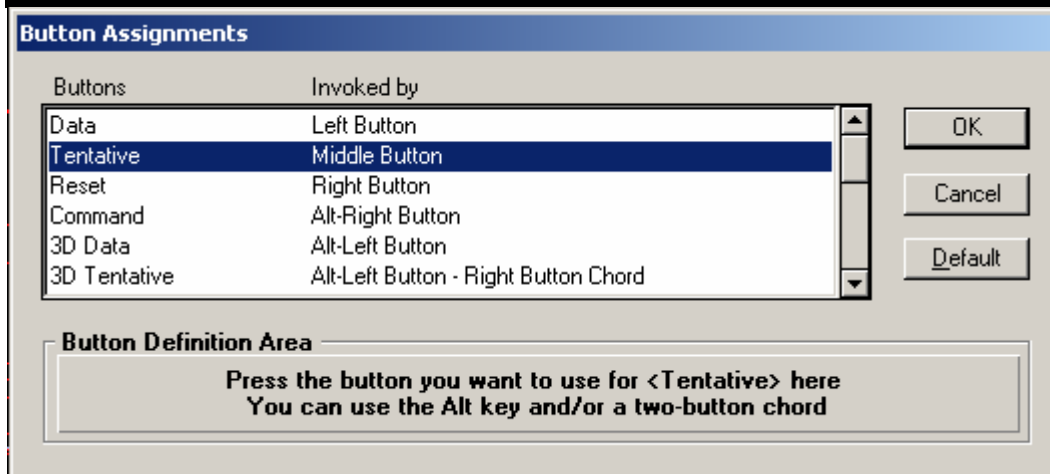


Figure 1-4: Middle Button Correctly Assigned

Press the **OK** button to preserve the assignment.

## Using a Wheel Mouse

If you are using a wheel mouse you need to establish the wheel as a **Middle Button** in your mouse properties of your **Operating System (XP)**.

There are some settings that you can set in your preferences for controlling the zoom and panning of your wheel mouse. You can find these setting by going to **Workspace>Preferences...** in the main menu. Select **Mouse** on the left side of your **Preferences** under your **Category** options. Check the different options out to the right and see what best fits your needs.(Figure 1-5)

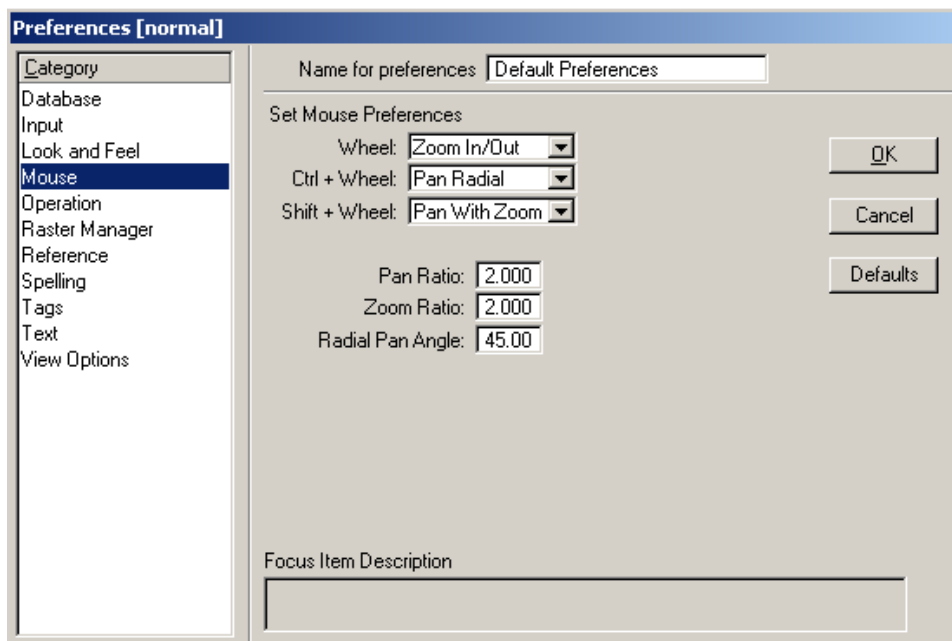


Figure 1-5: User Preferences

## **MENU OVERVIEW**

### **Introduction**

Our menu structure lets you run MicroStation from the keyboard. To let you keep one hand on the mouse, we've tried to maximize the keystrokes accessible with your left hand only.

### **The Principal**

Menu items can be chosen with your mouse or from your keyboard. Notice the underlined letters in the menu (File, Element, etc.) Open any menu by typing the **Alt** key, then typing that underlined letter. Then type the underlined letter of a command in the menu.

### **Organization: The Top Level**

Commands have been grouped together to make them quick to run and easy to find. Let's look at the menu structure, including important modifications we've made to existing menus as well as menus we've added:

The **File** menu has been modified to allow access to custom sheet-creation routines. The Reference(DOT) option has also been enhanced to give quick access to common Reference commands.

The **Edit** and **Element** menus have only minor changes.

The **Dimension** menu has been added to give quick access to some common Dimension settings.

The **Group** menu helps place and manipulate groups of objects. Using this menu, you can control fences and *graphic groups* and access tools for element selection sets as well.

The **Macro** menu is used to launch custom applications and enhancements.

Use the **Measure** menu measures distances, angles, areas and volumes.

The **Qualities** menu matches and changes color linestyle and other attributes.

The **Settings** menu has been modified to give you access to a wide range of MDOT *Settings Managers*, organized by task.

The **Stretch** helps you modify, extend, clip and trim elements.

The **Text** menu places and modifies text.

The **Tools**, **Utilities**, **Window**, and **Workspace** menus have only minor changes.

The **Zip** menu helps you place lines, shapes and cells. It also lets you move, copy, and modify, as well as hatch and delete.

### **Organization: The Next Level**

To keep things simple we've tried to keep the menus similar. The **Group** and **Zip** menus have some items in common: **Copy**, **Move**, **Delete**, and **Scale** are in both menus. They also have similar entries for **Mirror** and **Rotate**.

For commands that are unique, we've tried to balance logic with convenience. On the convenience side, you can run the "place line" from **Zip > Zipline**. "**Zipline**" isn't a familiar word, but it's convenient to "place line" with the keystroke **Alt+Z, Z**. On the logical side, there's the "Measure Length" command. **Alt+R, L**. The **Alt+R** opens the **Measure** menu, and the **L** chooses "Length" as an option.

## **Organization: Submenus**

Some commands have a lot of options you might want. With "Rotate", you might want to rotate by a specific angle. Then again, you might want to eyeball it. The **Rotate** item under both the **Group** and **Zip** menus has both of these options. You can "**Rotate by Angle**" or "**Rotate by 3 Points**".

## **Conclusion: The Pros and Cons**

With this system, you can execute virtually every MicroStation command with a two or three letter shortcut that can be typed with one hand. If you forget the shortcut, you can remind yourself just by browsing through your menus.



# FILE MANAGEMENT

## **NETWORK OVERVIEW**

### **MicroStation Customization files and Drawing Files:**

The master MicroStation customization files are on the network in a blind share. This means that they are in a secure location that isn't normally seen when mapping a drive letter. All users have a local copy of the customization on their C: or D: drive. Updates to the configuration are handled with an Update Utility. This utility does a date check of your local customization and updates files if changes were made to the master copy. There is one folder called **!msproj** in our configuration that still needs to be mapped to a drive letter. The folder is located on the \\dot0dta1fscadd1\msworksp\\. This folder has been "mapped" to your machine as your **W:** drive. This **!msproj** folder contains project specific information that are used as variables. These variables store information such as town name, federal project number, street or route number and user names of those who have worked on the project. A copy of this folder is on your C: or D: drive for offline work. As new PIN's are created, you may need to update this folder for offline work so your project shows up in the list.

The master copies of all drawing files are located on the network on \\dot0dta1fscadd1\pcpin1\\. This folder has been "mapped" to your machine as your **Y:** drive. This folder contains all of your design/detailing (project) information in the form of MicroStation files (.dgn).

**Regional Office** users create sync copies of their project drawing files to their local hard drive because the network speed is diminished due to the geographical location and in some cases offline work. In this case, the files are setup to a briefcase "PIN" folder at the root of their C: or D: drive.

## **OPENING FILES**

You should always launch MicroStation from either a desktop icon or the Start menu. The first dialog to open is the **MicroStation Manager**.

At the bottom of this dialog you will notice the **Workspace** area.

**User** should be set to **normal**.

**Interface** should be set to **mdot**.

**Project** should vary depending on what project you are working on. When you click on the **Project** picker, you should see a list of all active PINs. Pick your PIN from this list and MicroStation will take you directly to the design file directory for your Project. This is important because MicroStation will work smoother if it knows what project directory it should look to by default. If this is not working, please contact your CADD Support section.

❶ *This method of opening files is very important because we are now working with a dual unit configuration. Picking your project from the pull down will tell MicroStation what units to use for your project.*

Select a file to open from the left side of the **MicroStation Manager** and press **OK**.

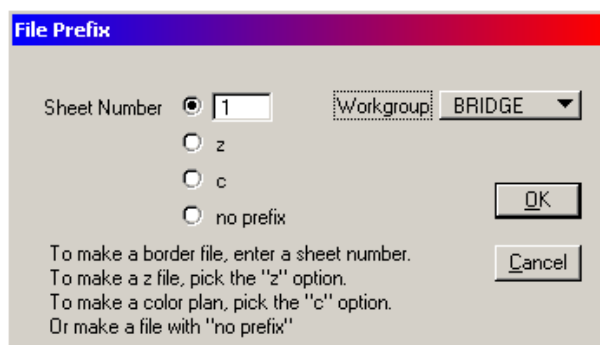
## **MAKING NEW FILES**

### **Setup**

This macro is used to make new design files that meet MDOT standards. It will create them only in the same folder as the MicroStation design file that is open when the macro is run. To create new files for a specific project, launch the project and open an existing file in the project's folder.

### **Launch the Makesheetz macro**

Launch the **makesheetz** macro from your main menu by selecting **File > Makesheetz**. This will open the **File Prefix Dialog** (Figure 1-6).



*Figure 1-6: File Prefix*

### **Choose Preliminary Information**

In the **File Prefix Dialog**, you can choose to make a **numbered** sheet, a **z**-file, a **c**-file or a file with **no prefix**.

Numbered Sheets contain borders. These are the drawings that comprise the plan set for delivery to Contracts. They are the sheets that get plotted. Choose a **Sheet Number**.

Z-Files are the files where detailing work gets done. They typically get referenced into Numbered Sheets for plotting.

C-Files are the files where coloring is done for visualization purposes.

If you do not want a number, a “c” or a “z”, you can also choose “no prefix.”

🎵 Notice you can choose a different **Workgroup** here. This option starts with your default workgroup. You can change this to create a file that would normally be made by another Workgroup.

When you have set your options, press **OK**.

### **Choose a File Type**

This will bring up the **Create File of Type...** dialog (Figure 1-7).

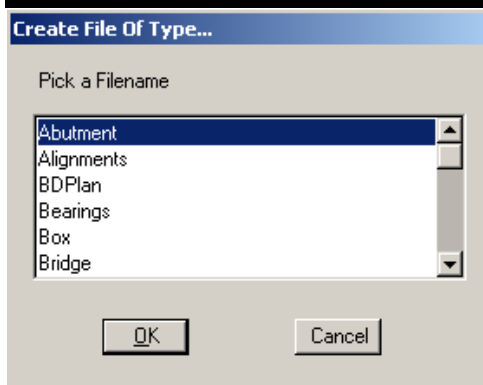


Figure 1-7: Create File of Type

Scroll down the list to find the file type that you want to create. Select it and press **OK**

## Final Filename Editing

This will bring up the **Make File** dialog (Figure 1-8).



Figure 1-8: Make File

You can edit the entry in the **Create file called** box.

Choose a number from the pull down for multiple drawings of the same type: (Figure 1-9) or type a suffix into the text entry box (Figure 1-10).

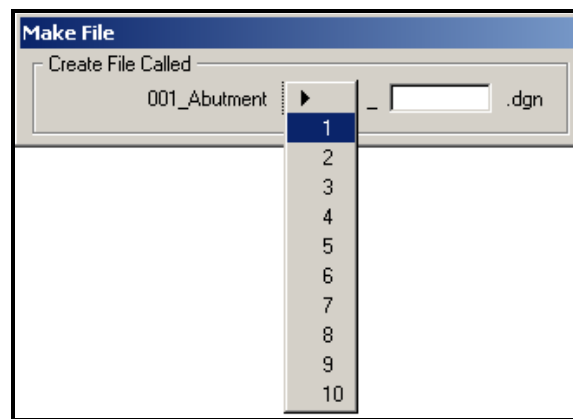


Figure 1-9: Index Picker

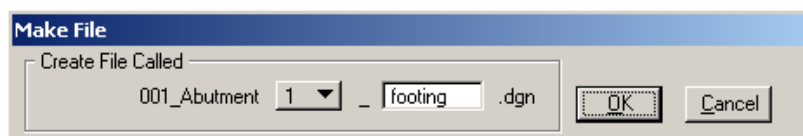


Figure 1-10: Suffix

Press **OK** when you have finished editing your filename.

- ♪ The macro will automatically enter the underscore character before your suffix. If you do not type a suffix in, it will not insert an underscore.

## End Game

This will create the new file based on appropriate seed files and place the correct border cell, where needed. It will then opens up the **File Prefix** dialog again and prompt you to create another file (Figure 1-11)

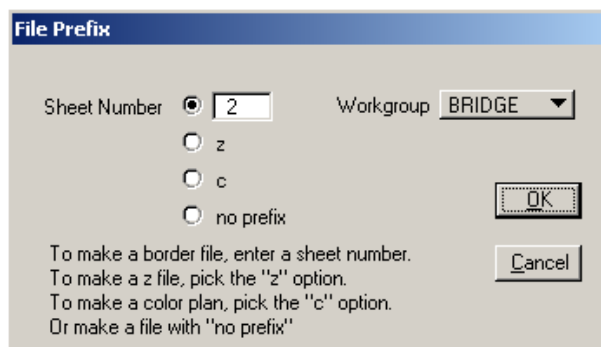


Figure 1-11:File Prefix Again

Press **Cancel** if you are done making files, or repeat these steps to make another file.

## Safety Features

This macro will not automatically overwrite existing files, if you happen to tell it to create a file that already exists. It will first prompt you (Figure 1-12).

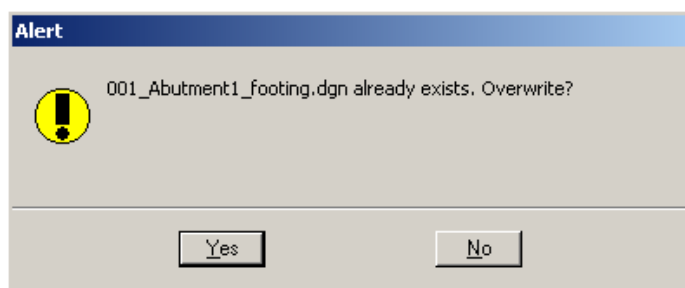


Figure 1-12:File Overwrite Alert

If you press **No**, the macro will bounce you right back to the **File Prefix Dialog** to let you pick a new sheet number.

## **FILE NAMES**

The file names are important because the automatic sheet numbering capability of MicroStation relies on the first three digits of the file name. We all have had plots that came out with “XSE” in the “sheet number” box on your cross section plot. This is because the filename of your cross section you plotted was something like XSECTMC10\_002.dgn. File names are also important because MicroStation automatically loads the Settings Manager that should be used based on the drawing type.

**❗ *Do not manually edit the sheet numbers on any of your drawings. Allow the automated procedure to handle this.***

Consider using the default number that displays, based on your workgroup, when cutting plan sheets. This will leave room for sheets that will go before the plans and numbered in the beginning of the project, for example:

001\_title.dgn

002\_typical\_01.dgn

003\_typical\_02.dgn

004\_estimate.dgn

005\_drainage.dgn

006\_notes\_general.dgn

007\_notes\_construction.dgn

008\_???.dgn

009\_???.dgn

010\_???.dgn

011\_HDPlan1.dgn

The renumbering utility can be used again and again if necessary. Don't worry if they aren't in the correct order until final print.

**❗ *Avoid having sheets with the same prefix and suffix in their filename. Add a suffix to sheets to differentiate the like drawings (i.e. Typical\_01.dgn, Typical\_02.dgn). The sheet renumbering utility doesn't like having two drawings with the same prefix or root filename and suffix. You can use Windows Explorer to rename any identical root filenames to add a suffix or you can let the renumbering utility give you the warning and start rebuilding the list to the right.***

## **SHEET RENUMBERING UTILITY**

### **Introduction**

This utility was developed to quickly rename/renumber your plot drawing files in the event that a sheet is added or deleted from a plan set. It allows you to prioritize the plan set based on the order of files in the list.

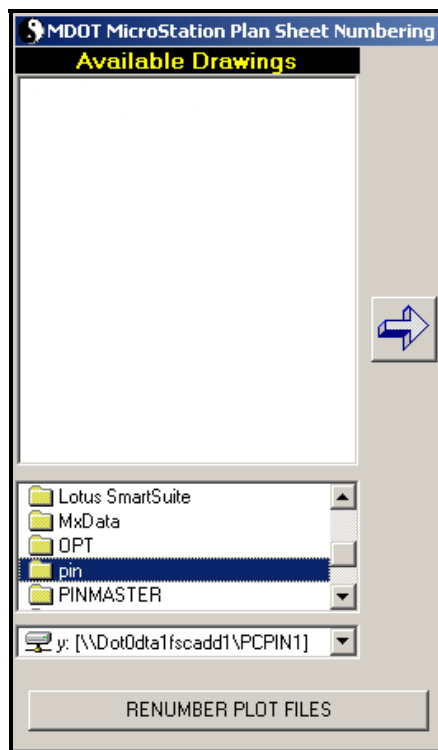
### **Operating the Utility**

To use this utility click on the icon on your desktop. (Figure 1-13)



*Figure 1-13: The Tao of Renumbering*

Next you will need to click your way to the **PIN** directory that you are interested in by changing the drive letter in the lower left corner, above the **Renumber Plot Files** button, to **y:\dot0dta1fscadd1\PCpin1**. Double click on the **pin** folder and select the desired **project identification number (pin)**. You should keep double clicking on the sub folders to get yourself to your workgroups MSTA folder as shown in Figure 1-14.



*Figure 1-14: Browsing for Files.*



## mdot MicroStation

## General Procedures

Once there, you will see the list of drawings under the heading **Available Drawings** to the left and the utility automatically creates a list of all your numerical prefix drawings to the right under the **Listing of Sheets** category (Figure 1-15).

♪ If you have drawings with the same prefix numbers the utility will not populate the file names under the **Listing Of Sheets** beyond the duplication. You can either use *Windows Explorer* to rename individual prefixes or just populate the **Listing Of Sheets** beyond that point.

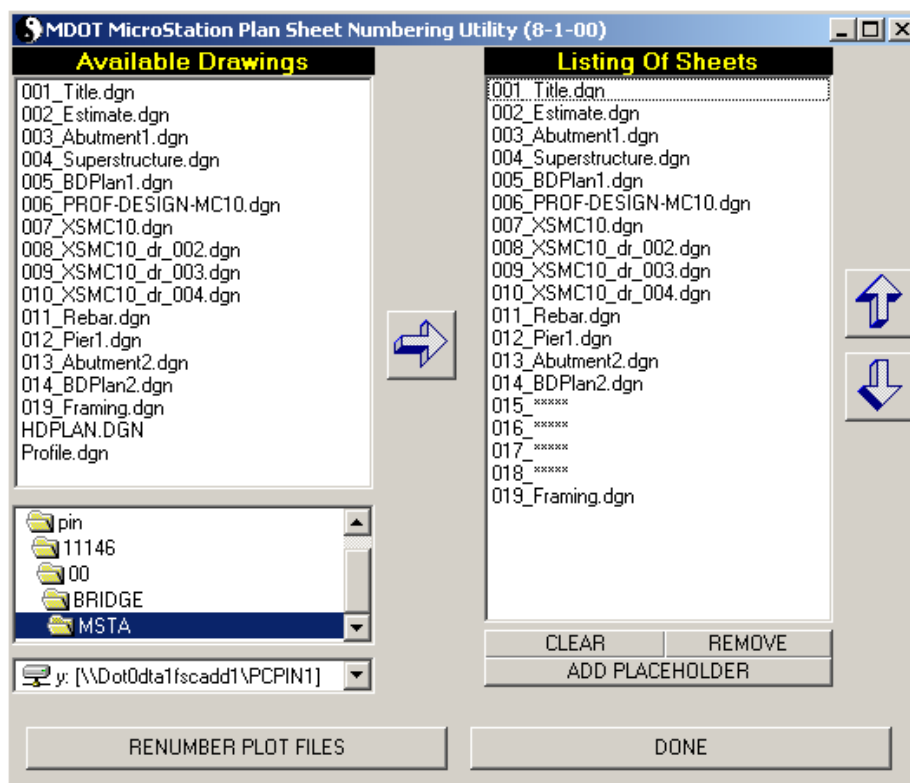


Figure 1-15: Renumbering Interface

### Prioritizing Plan Set

Now we are ready to prioritize the drawing list to create the correct numbering of sheets for the final plan set. You may have noticed that the list to the right side of the utility shows place holders between the original numbered drawings you had created, that's O.K. just simply highlight each place holder (015\_XXXX) that you don't want and hit the Remove button or hit the Clear button and remove all files so that you can rebuild you list of files by highlighting and using the arrow in the middle to push the file back to the right.

♪ Because of the way this utility functions, the more gaps between the numbers of your original file names the more placeholders that will need to be removed.

You have the ability to add placeholders between drawings to create a gap in your sheet numbers in case there are sheets being inserted from other workgroups. You can move a selection of files up and down with the arrows to the right of the utility to prioritize your plan set.

## mdot MicroStation

## General Procedures

Once you have done this, go ahead and hit the **Renumber Plot Files** button and you should see your file names renumbered and the list to the left renamed as shown in Figure 1-16.

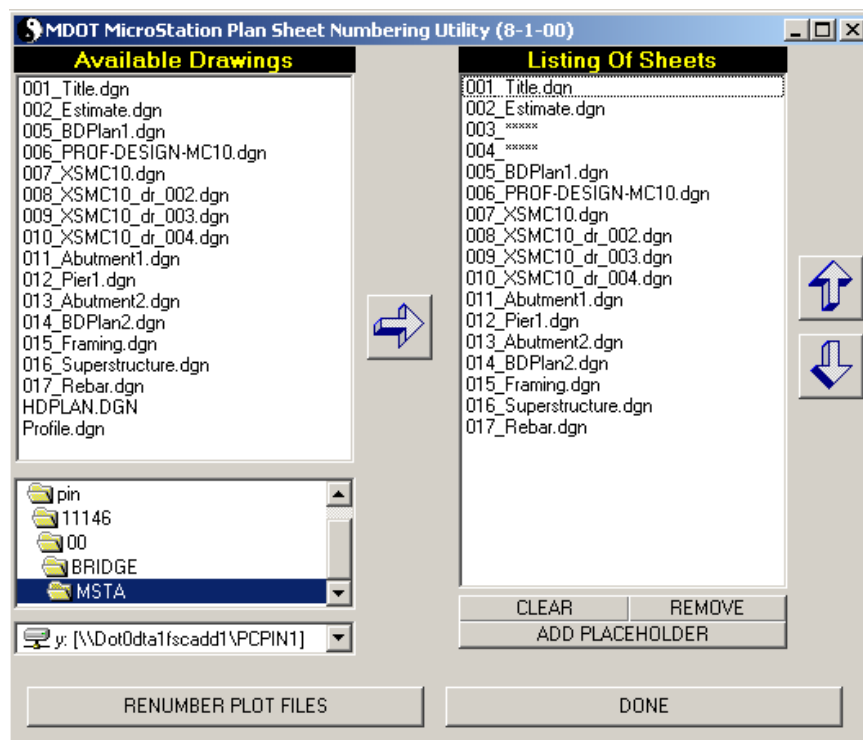


Figure 1-16: Renumbered Files

Press **Done** when you are finished.

## Precautions

This utility is set up to look for files within your folder. It is necessary that all file names are unique not only in their root filename and suffix, but in their prefix as well. If this requirement isn't met then you will experience problems activating this utility and/or renumbering when in the utility.

The utility reverses the order of files when they are the first files pushed into the “Listing of Sheets”. Add a couple of place holders and click on the last place holder prior to pushing a large grouping of sequential files into this area.

- ❗ *If you get an error when first opening the utility, it may be because a PIN number that was previously renumbered no longer exist. To fix this problem, browse to your C:\windows directory and open the control.ini file. Delete the InitDirectory line in this file and the path to the PIN that it refers to. Reopen the Sheet Renumber Utility: (Figure 1-17)*

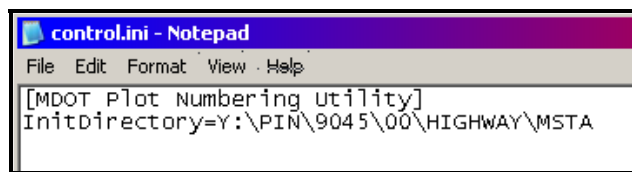


Figure 1-17: Control file

## **PCF EDITING**

### **Discussion**

**PCF Files** - “Project Configuration files” are files that contain project specific information that will be used by MicroStation and databases that can extract project information from lines of text in the file.

Open one of your prefix numbered drawings.

### **Edit PCF File**

Go to **Workspace > Edit Project Data (PCF)** to revise or add information about this project. A list of variables will appear in a dialog.

❗ *If you get the warning that says “Close MicroStation and choose a project that is consistent with your file location”, there are two thing it could be.(Figure 1-18)*

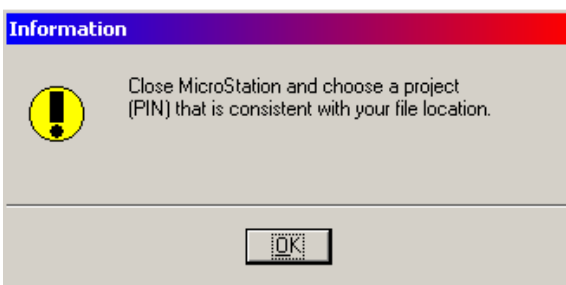


Figure 1-18: Information Dialog

1. You may have entered MicroStation improperly. You must open MicroStation by clicking on the **MicroStation** icon on your desktop and selecting your **PIN** number in the project pull down (this is in the lower portion of your *MicroStation Manager* window. This selects the PCF file that is associated with your PIN number) If you have the wrong project specifics on your plot, this is a BIG clue that you selected the wrong PCF in the project pull down or that your PCF has bogus information in it.
2. If the line in your PCF file says “PCF\_PINNUMBER = \_\_\_\_\_”, and does not have a value, you will still get this warning. Simply correct this by adding your PIN number (i.e. 1234.00), saving the PCF file and restarting MicroStation.

❗ *Do not enter the word “PIN” in the PCF\_PINNUMBER field.*

Verify that the fields crucial to your drawing are filled in. Edit a field by clicking on the field and hit **OK**.

Another dialog will prompt you for input. Add the information and click **OK**. Figure 1-19

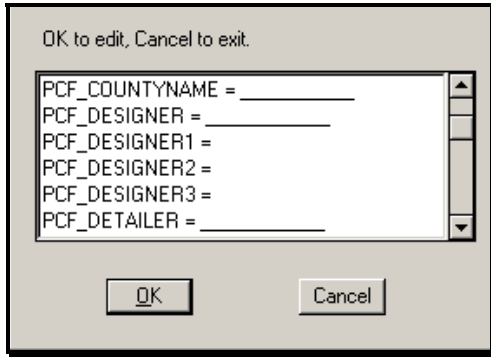


Figure 1-19: PCF Selections

When done, hit **Cancel to Exit**. Click **Yes** to save the changes.

🎵 In the capture above, you will notice some similar selections. Due to the fact that some border drawings may contain different variables, you should enter the primary designer in both the PCF\_DESIGNER and the PCF\_DESIGNER1 fields. The same goes for PCF\_DETAILER. Additional designer and detailer fields are there for a future border that will have the additional fields.

🎵 If no changes were made and you attempt to save the file anyway, you will get an error. Click **OK** to bypass the error.

The macro will ask you if you would like to edit the border information. Say **Yes** to process all of the numbered drawings now or **No** to process them later using **Macros > Border**

**Information** from the *Main Menu*. Figure 1-20

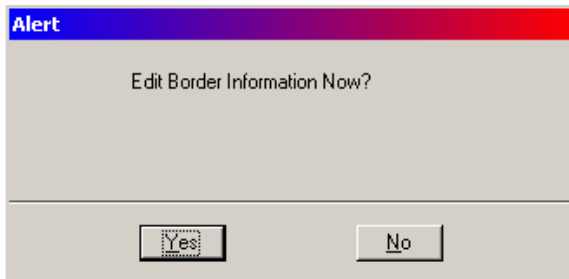


Figure 1-20: PCF Edit Alert

✓ Refer to the *Border Information Macro* on page 1-21.

## **BORDER INFORMATION MACRO**

### **Discussion**

The standard border cells contain variables for sheet number, total number of sheets, street name, etc. These variables begin and end with a “\$” or “@”.

We have a macro that will substitute your active project information into those variables.

It will also look for the first three digits of your file name and use those as your current sheet number.

This is called the **Borderinfo** macro, and you run it from your main menu by selecting **Macros > Border Information**.

The macro is capable of processing a whole folder-full of files at once.

✓ *Refer to page 1-24 for information on disabling edited items.*

### **Sheet Numbering**

Before you run the macro, make sure your file fits naming conventions, i.e., begins with a 3-digit number and an underline.

✓ *Check page 1-16 for instructions on using the Sheet Renumbering Utility.*

### **Process Options**

If you are running the macro from an appropriate file and project setup, you will get the **Border Info** dialog box (Figure 1-21) that offers you two options.

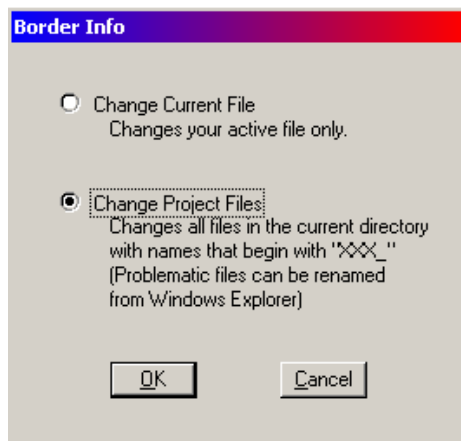


Figure 1-21: Border Info

### **Current File**

Process your active file by picking **Change Current File**.

### **Project Files**

Process a whole directory full of files by selecting the **Change Project Files** option. This will select all eligible files in your current directory for processing.

You will get a dialog that lists all the files that will be processed. You can browse through this list to confirm that only the files you want to process are listed (Figure 1-22).

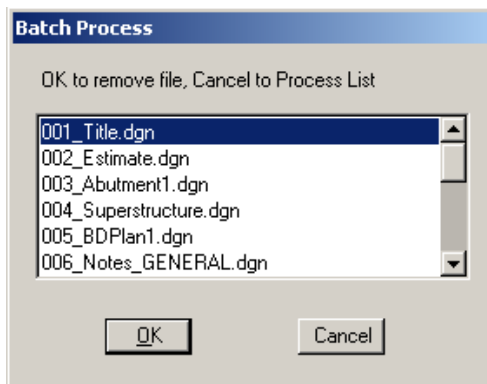


Figure 1-22: Batch Process

If you don't wish to process a certain file in the list, highlight it and press **OK**. Otherwise, press **Cancel** and MicroStation will open and process each file on the list.

- ♪ Remember that only files in your active directory that begin with a 3-digit number (followed by the underscore "\_" character) will be processed.

## Error Messages

When running this macro, you may get one of two error messages.

1. If you didn't pick your current project before opening the file, you'll get a prompt to "Close MicroStation and choose a project (PIN) that is consistent with your file location." This will protect you from substituting incorrect information onto a border.
2. If you are working in a file that is not properly named, you will get a prompt that explains the file naming criteria. You will get this message if you try to run the macro from a file that is not a border file or it has not been run through the Sheet Renumbering Routine.

## Side Effects

The most important side effect of this macro to be aware of is that it will drop all border cells in every file processed.

- ♪ The macro may not substitute information if you don't have a standard border cell. In that case, drop the cell manually from **Qualities > Drop > Complex**.

## Changing Data After the Fact

If you go back and need to change your project data, select **Workspace>Edit Project Data (PCF)**.

- ✓ Refer to page 1-19 for the specific details of editing PCF files.

## **Troubleshooting**

If it seems like the macro is not finishing, it may be because of one of the following reasons.

1. Someone may have changed or hard coded a variable on the border.
2. You cannot use a backslash between the month and year in your PCF file.
3. Your file may be corrupt. (See your CAD administrator)
4. If there is any multiline text in the border cell the macro can get hung up.

## **DISABLING THE BORDERINFO SUBSTITUTION**

### **Overview of Droplink.bas**

The downside of using the **Borderinfo** macro to substitute project information onto the border sheets (**Macro > Border Information**) is that you are limited in your ability to alter the results of the substitutions.

Once the macro has run, you can edit the text as normal. However, every time the **Borderinfo** macro runs, it will re-substitute its text: potentially overwriting your custom text entry.

The **DropLink** macro has been written to allow you to “hide” your altered text, preventing the **Borderinfo** macro from changing it when it is run.

A possible good use of this is if you want to maintain a certain designer/technician name of a plan sheet then you would droplink these names so that the border information would not change them.

### **Setup**

There are two ways the **Droplink** macro can process elements.

You can place a fence or select a bunch of elements using PowerSelector and then run the macro. The macro will process all the indicated elements.

Or, you can run the macro with no *Fence* or *Selection Set*, and the macro will allow you to pick elements one at a time to drop.

### **Run the DropLink Macro**

From the main menu, select **Macro > Droplink**.

If you have a *Selection Set* or *Fence*, *Datapoint to Accept*.

Otherwise, select each element you'd like to drop the linkage from.

### **What Does it Do?**

The **DropLink** macro removes an invisible tag from the elements you indicate. This tag is the only way the **Borderinfo** macro can find these elements to change them. Without the tag, the **Borderinfo** macro will not further alter the elements.

❗ *This process is only reversible by using Edit > Undo.*

### **Quitting**

To exit out of the macro, simply choose another command.



# PLOTTING OVERVIEW

## **MDOT PLOT DRIVERS**

Plots can be sent to any plotter, regardless of its location. Due to network speed, it may be more feasible to have someone at the location send the plots. Regional offices should have someone in the MDOT – Augusta office plot out complete plan packages.

♪ **Removing the “US\_” from the front end of the drivers description will give you the names of the METRIC plot drivers.**

### **US\_OCE9800FULL – Final Full Size Plotting**

This option sends a full size plan sheet, which is 36” wide, to the plotter located in the reproduction room at MDOT – Augusta.

This plotter produces excellent plots and is capable of handling large batch jobs.

### **US\_OCE9800HALF – Final Half Size Plotting**

This option sends a half size plan sheet, which is 18” wide, to the plotter.

The plotter has an 18” roll; therefore, no trimming is required. For this reason, it should be used when sending large half size jobs to the plotter.

### **US\_OCE9800LONG – Long Plots (5’ – 20’)**

This option sends plots longer than our normal plan sheet is tall (24”+/-). Currently, we have 4 different lengths available: 5ft, 10ft, 15ft, and 20ft. We use this in conjunction with clip boundaries of the same size to achieve a plot that is to a desired scale.

### **US\_OCE98002FILE**

This option is for creating plot files (.plt or .000). This is used in conjunction with the OCE Job Director. The Job Director can use the plot files to create full or half size plots.

✓ *For more information on the OCE Job Director, refer to page 15-32.*

### **US\_OCE9400FULL - Full Size Check Plots**

This option sends a full size plan sheet, which is 36” wide, to the plotter located in Room 312 on the 3<sup>rd</sup> level of MDOT in Augusta.

This plotter is for quick working plots and is not intended to be used for final plots or large batch jobs. Please send only 10 plots at a time to this plotter.

### **US\_OCE9400HALF – Half Size Check Plots**

This option sends a half size plan sheet, which is 18” wide, to the plotter. This plotter does not have an 18” wide roll so trimming will be required.

This option is only for quick “check” plots, because trimming is necessary.

It is not intended for large half size batch jobs.

### **US\_OCE9400LONG – Long Plots (5’ – 20’)**

## **mdot MicroStation**

## **General Procedures**

---

This option sends plots longer than our normal plan sheet is tall (24"+/-). Currently, we have 4 different lengths available: 5ft, 10ft, 15ft, and 20ft. We use this in conjunction with clip boundaries of the same size to achieve a plot that is to a desired scale.

### **US\_HPCOLOR2**

This option is for sending color plots to the HP1055CM Plotter in the Planning Section of MDOT in Augusta, in Room 223 on the 2<sup>nd</sup> Level. This is considered to be a backup plotter and only be used when the HP1055CM in Room 303 of the 3<sup>rd</sup> Level is overloaded or in need of repairs.

### **US\_HPCOLOR4**

This option is for sending color plots to the HP1055CM Plotter in Room 303 on the 3<sup>rd</sup> level of MDOT in Augusta. This plot driver points to the plotter through the same print server as all the printers and photocopiers in the building.

### **US\_HPCOLORRoom303**

This option is for sending color plots to the HP1055CM Plotter in Room 303 on the 3<sup>rd</sup> level of MDOT in Augusta. This plotter uses a different print server than the US\_HPCOLOR4. It should be used when sending for large color plots.

### **PLOTCHP4**

This option is for sending color plots to the HP1055CM Plotter in Room 303 on the 3<sup>rd</sup> level of MDOT in Augusta. This is primarily use by the Public Hearing Section. It uses US Customary Units (feet and inches).

### **PRINTER\_BW**

Drivers with PRINTER in the name sends the plots to your default 8.5" x 11" printer that you have mapped to your computer. If you are sending prints to a color printer, this option will print Black and White. If you are using this option and sending to a Black and White Printer, all lines (even if you are displaying color) will print black.

### **PRINTER\_COLOR**

Drivers with PRINTER in the name sends the plots to your default 8.5" x 11" printer that you have mapped to your computer. If you are displaying color in your drawing, this option will print color. If you are using this option and sending prints to a Black and White Printer, lines other than black will be a gray tone.

### **PRINTER\_STANDARD\_DETAIL**

Drivers with PRINTER in the name sends the plots to your default 8.5" x 11" printer that you have mapped to your computer. This option is intended but not limited to Standard Detail printing and will print Black and White. This option produces thicker weights than the PRINTER\_BW. Compare the results of the two drivers and choose the one that suits your needs.

## Hearing\_PRINTER

Drivers with PRINTER in the name sends the plots to your default 8.5" x 11" printer that you have mapped to your computer. This driver is used by the Public Hearing Section, however can be used by anyone. Test and compare the results of this driver with other printer drivers and choose the one that suits your needs.

## Regional Office Plotters HP750C

All of the Regional offices are equipped with an HP750C plotter in addition to any Laser Jet printers.

Use the printer drivers in the *plotdrv* folder for printing to a Laser Jet (8.5 x 11) printer. Use the drivers in your specific "divisions" folder for all plots going to your HP750C.

♪ **Removing the "US\_" from the front end of the drivers described will give you the names of the METRIC plot drivers.**

### US\_FULL750C\_???\_GR

Default full-size black and white plot driver. Sends plots to the HP750C plotter.

### US\_HALF750C\_???\_GR

Default half-size black and white plot driver. Sends plots to the HP750C plotter.

### US\_Long\_750C\_???\_GR

This option sends black and white plots longer than our normal plan sheet is tall (24"/+/-). Currently, we have 4 different lengths available: 5ft, 10ft, 15ft, and 20ft. We use this in conjunction with clip boundaries of the same size to achieve a plot that is to a desired scale.

### US\_PLOTCHP\_???

This option is for sending color plots to the HP750C plotter.

♪ There may be other drivers in your "divisions" folder that have been created by users. Some may work and others may not. If you need assistance with drivers contact CADD Support.

## Regional Office Plotters OCETDS400

Some of the Regional offices are equipped with an OCE-TDS400 plotter in addition to a HP750C and any Laser Jet printers.

Use the drivers in your specific "divisions" folder for all plots going to your OCETDS400.

♪ **Removing the "US\_" from the front end of the drivers described will give you the names of the METRIC plot drivers.**

### US\_OCETDS400FULL

This is a high speed, full size, black and white plotter that sends plots to the OCE plotter (if available) in your Regional Office.

**US\_OCETDS400HALF**

This is a high speed, half size, black and white plotter that sends plots to the OCE plotter (if available) in your Regional Office.

**US\_OCETDS400LONG**

This option sends black and white plots longer than our normal plan sheet is tall (24"+/-) to the OCE plotter (if available) in your Regional Office. Currently, we have 4 different lengths available: 5ft, 10ft, 15ft, and 20ft. We use this in conjunction with clip boundaries of the same size to achieve a plot that is to a desired scale.

## **PEN TABLES**

Pen tables are used in combination with certain Plot Drivers, to accomplish a desired output to a printer or plotter. Each pen table does something different to your drawing at plot time. Some will require testing with your type of drawing, others have been established for specific types of drawings.

### **!pentable.tbl**

This is the default pen table for plan production. This is used for all plans being submitted to Contracts with the exception for Title sheets for Highway users.

We have combined four old pen tables into this default pen table. It substitutes certain text items (username, division, date, file name, etc.) into standard MDOT borders.

This pen table lets you print out survey elements in a gray tone. Elements are changed to gray if they are in a reference file that has one of the following logical names:

Topo, Text, Points, Contours, Topoadd1, Topoadd2, and Topoadd3.

Gray elements, like Cross Section and Profile grids, are prioritized to plot underneath all black elements. Elements in these files that are weight 0 are changed to weight 1.

### **BORINGLOG.tbl**

This is used by Geotech to produce desired plots of their Boring Log sheets.

### **ENV\_PRINTER\_COLOR**

This is used by Environment to produce the desired plots for 8 1/2" x 11" color Wetland Mitigation plans.

### **Graysurvey\_wetlands.tbl**

This is used by Environment to produce plans of Wetland delineation. This makes the Wetland **bold** so that they stand out on the plots.

### **Heavytopo.tbl**

This plots out the existing survey in black as opposed to graying it out as does the !pentable.

### **MHPC.tbl**

This is used by Environment to produce a color plan set for plans to be submitted to MHPC.

### **Prelim\_plan\_color.tbl**

This is used by the Bridge Program to produce a colored preliminary plan.

### **Title.tbl**

This is used by the Highway Program when printing a Title Sheets that has a Plan Layout. This adjusts dashed lines in the topo drawings so that they can still be displayed at the smaller scale.

**Hearing\_Thicker.tbl**

These were set up for our Hearing Section in order to increase the weights of lines, by one stroke, at plot time.

**Hearing\_Thinner.tbl**

These were set up for our Hearing Section in order to decrease the weights of lines, by one stroke, at plot time.

**Laserjetblack.tbl**

This option will force every color in your drawing to black. This was intended to be used with a Laser printer.

**Rowblack.tbl**

This option adjusts the processing order and forces all color to black except for color 46.

## **SINGLE SHEET PLOTTING (FENCE PLOTTING)**

This procedure is for sending a single Plan Sheet to a plotter or printer at a desired scale using a fence. It requires that you are using a standard border drawing that has predefined boundary strings. There are two boundaries for Metric projects, one for an OCE plotter and one for HP1055CM or HP750C plotters. In our U.S. Customary projects the borders only have one string that will work for all plotters. All printers (8.5 x 11) use the same boundary string.

### **Step One: Place a fence**



Click on the Place Fence icon and set the *Fence Type* to **Element** and the *Fence Mode* to **Inside** (Figure 1-23).

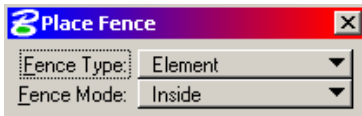


Figure 1-23: Place Fence Options

Click on the boundary string. U.S. Customary borders only have one boundary. For Metric projects, click on the boundary string that is used for the plotter you are plotting to. Zoom in on the top left had porting of your border to determine which shape is right for you (Figure 1-24). (Outer dotted boundary is used for the OCE plotters; the inner solid boundary is used for HP plotters.)



Figure 1-24: Metric border with two boundary strings

### **Step Two: Select Print/Plot**

From the main menu select **File > Print** option.

On the **Print** dialog, press the **Magnifine Glass** button or go to the menu and select **File>Bentley Driver...** (Figure 1-25).



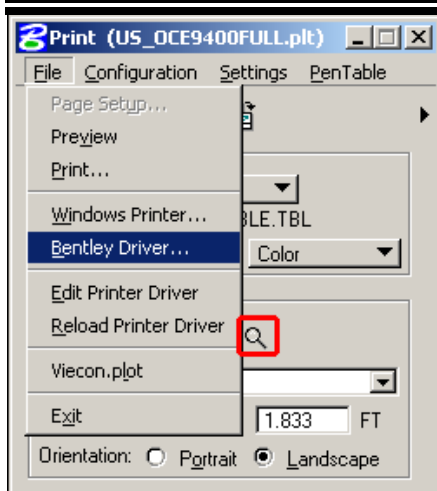


Figure 1-25: Plotter Driver on the Print Dialog

You should see a list of plot driver files pop up for you to select from. If you do not see the standard plot drivers, please browse to **C:\msv8confstandards\plotdrv**. Select the plot driver that you want to plot to.

✓ For a complete list of drivers, refer to page 1-26.

Select the pen table if necessary. The default table (!pentable) should be loaded, however if you want a different one, select **PenTable>Attach** from the menu and select the desired pen table. If you do not see the standard pen tables, please browse to **C:\msv8confstandards\tables\pen**.

✓ Refer to page 1-30 for a complete list of Pen Tables.

You now have the ability to modify attributes through the **Print Dialog**. In the past you would have to select **Settings>View Attributes** from MicroStation to turn off Construction Elements on single sheet printing. Now you can select **Settings>Print Attributes...** from the **Print Dialog** menu and toggle things on and off without effecting the display in your main view.

From your **Print Dialog**, you can preview your plot by either selecting from the menu **File>Preview**, clicking on the **Preview** icon (Figure 1-26) next to the **Print** icon, or you can simply expand the dialog by clicking the **Show Preview** to the right top of the dialog (Figure 1-26).

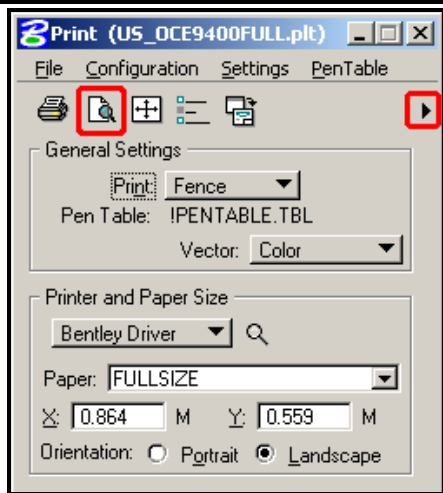


Figure 1-26: Preview Icon

You can also get more information by selecting the **Show Details** expansion button in the lower right hand corner of the **Print Dialog** (Figure 1-27).

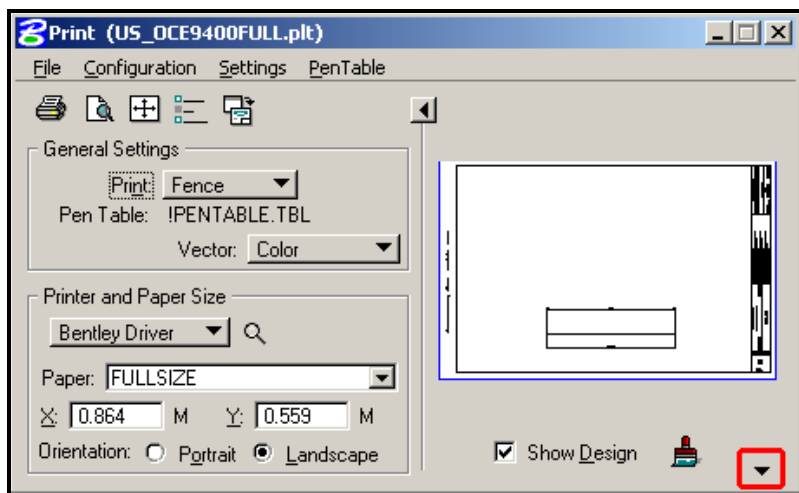


Figure 1-27: Show Details

When you expand the dialog you will see information about your **Print Size/Scale** and **Print Position** (Figure 1-28). You may notice that the **Scale:** shown in this image (3.2808' to 1 M) looks incorrect. It really isn't, this is the conversion factor of U.S. Customary to Metric. If you would like to see the correct scale you can change the settings to read feet to feet. This is done by selecting **Settings>Units>FT** from the **Print Dialog** menu. Now the scale should make more sense (Figure 1-29).

- ① *If the scale seems to be out of wack when switching the units then you may need to reopen the file or close out of MicroStation and come back in to see the correct factor.*

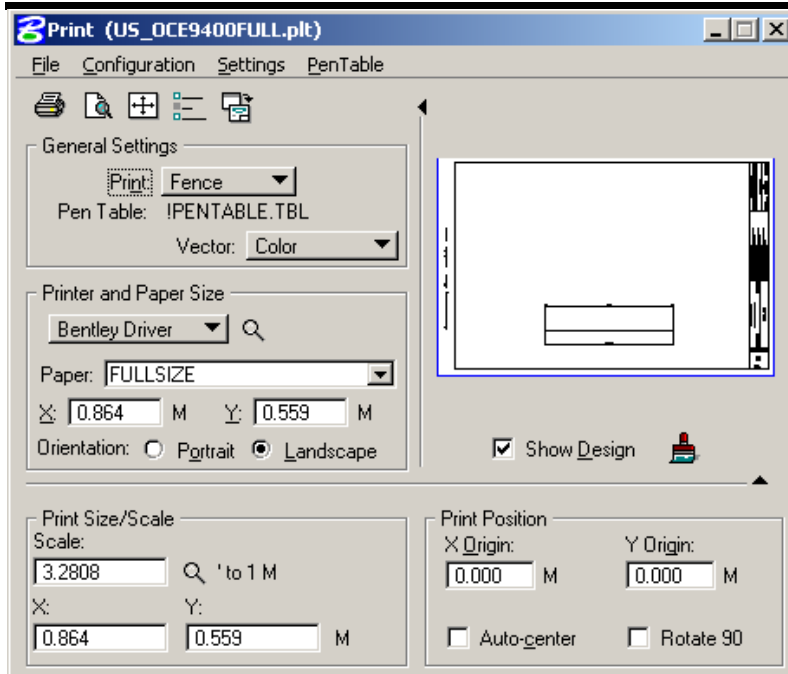


Figure 1-28: Print Size/Scale & Print Position

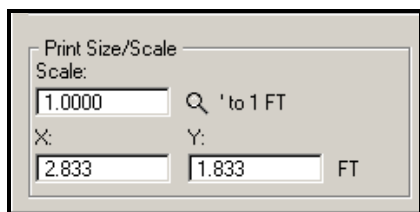


Figure 1-29: Print Size/Scale

The **Print Position** settings displayed in the prior caption are fine as displayed.

♪ When doing a fence plot and picking your plot driver you should not have to worry too much about the settings for **Print Size/Scale** or **Print Position**.

If everything looks fine then hit your **Print** icon or **File > Print...** and send your print.

## **PLOTTING SHEET FILES (BATCH PRINTING)**

This procedural manual will lead you through some routines involved in plotting sheet files (files named in the form of “001\_HDPlan1.dgn” that contain standard borders.)

### **Making a Batch Print Job**

The *Batch Print* utility (**File > Batch Print/Plot(DOT)**) is MicroStation’s “one-stop shopping” for plotting. It’s going to make sure our plots are made to the right scale, to the right plotter, and with the right elements showing or not showing. It will also allow us to plot out files one by one, in specific groups, or all at once. Naturally, this takes a little bit of setup...

First, select **File > Batch Print/Plot (DOT)**. This brings up the *Batch Print* dialog (Figure 1-30).

- ♪ Selecting the DOT option will open a dialog to your PIN directory, giving you the option to select a previously saved *.job* file. Hit *Cancel* if you would like to setup your own at this time.
- ♪ The caption below is for U.S. Customary units, based off the working units of your project MicroStation will launch a different *Batch Print* dialog with changes to the **Specifications Controlling Printing** area.

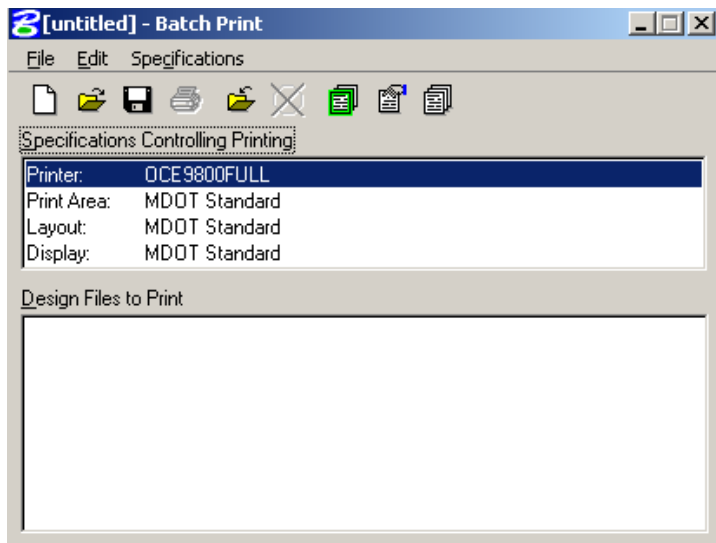


Figure 1-30: *Batch Print* dialog

This dialog allows you to create a *Batch Print* “Job.” A Job has two parts: a list of files and a list of specifications. The files are simply the .dgn files that *Batch Print* is going to plot for you, and they’ll be listed at the bottom of the dialog under the *Design Files to Print* area.

The Specifications control *how* these files are going to be plotted, the extents to be plotted, which printer they’ll be sent to, which elements will be dithered, etc. There are four specific specifications: Printer, Print Area, Layout, and Display.

Next, select the files you want to include in your *Batchplot*.



Figure 1-31: Add Design Files

Push the **Add Design Files** button (Figure 1-31) on the *Batchplot* dialog.

This brings up the **Select Design Files to Add** dialog (Figure 1-32).

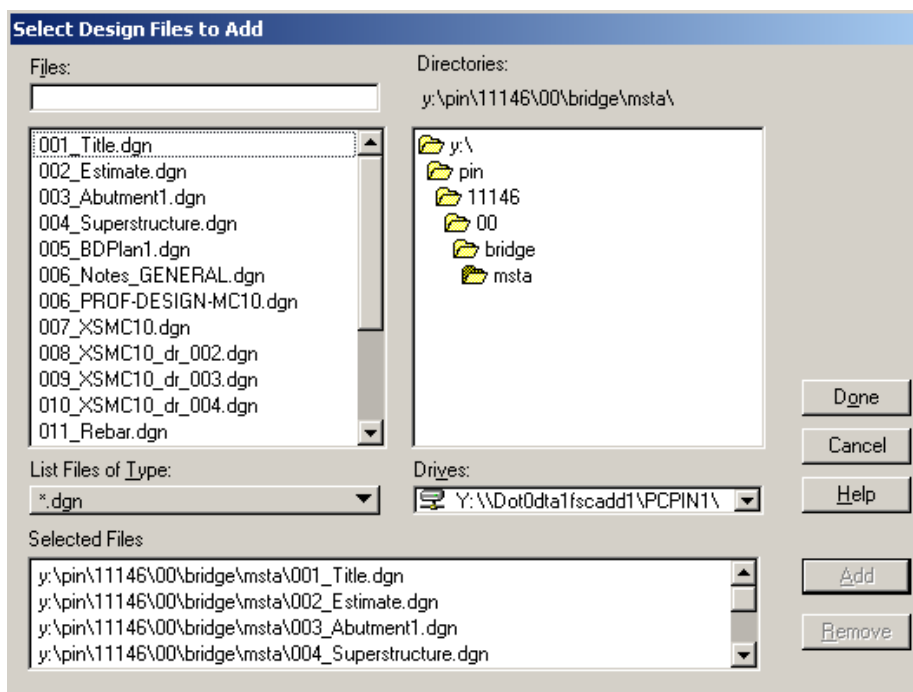


Figure 1-32: Select Design Files to Add

Select all of your sheet files from the file list at the left. When they are highlighted, press the **Add** button at the bottom of the dialog. Don't just select the files that you want to print right now. Pick all the sheet files in the job. *Batch Print* will allow you to print them out one at a time if you want. Notice the file names are now displayed in the **Selected Files** list. When you have added all the files, push "**Done**".

You should see the files you just selected listed in the **Design Files to Print** section of the *Batch Print* dialog.

Now we've established our list of files to plot. It's time to select Specifications.

From the **Specifications Controlling Plotting** area, select the **Printer** line. The Printer specification chooses a plot output location and a sheet size. Push the **Select Specification** button to see the options (Figure 1-33).

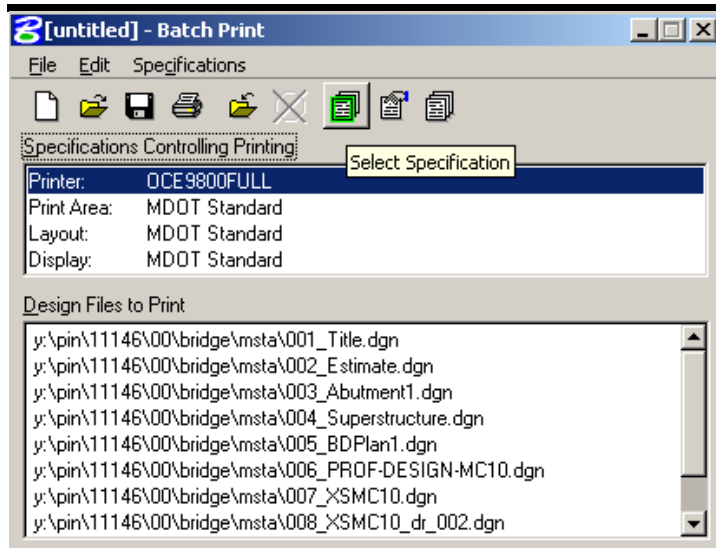


Figure 1-33: Batch Print Dialog

Notice that there are many selections here (Figure 1-34). The capture only shows seven, however, there are many to choose from as outlined previously. Select the plotter you wish to plot to.

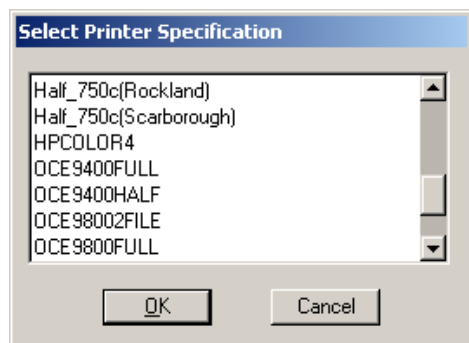


Figure 1-34: Select Printer Specification

It's probably a good idea to make a *Batch Print Job* for both fullsize and halfsize printing for each project. Let's start with the full size. Select "OCE9800FULL" from the **Select Printer Specification** dialog and push **OK**.

The **Print Area** options determine what element you are looking for in a design file to print to. When plotting to a printer (8 1/2 x 11) select *printer*, *printer\_color* or *Standard Details*. All other plan sheets should be plotted to the *MDOT Standard* option.

🎵 If this was a Metric project then you would leave the **Print Area** option set to *OCE* for the OCE plotters in Augusta and for Regional users it would be set to *divisions* for their HP plotters or OCE if they have one.

The **Layout** specification does not need to be touched.

The **Display** specification controls which elements are plotted (for example, it can be used to turn off the display of all construction elements prior to plotting.) It is also responsible for attaching *Pen Tables* to the plot. We are using *Pen Tables* for a couple of purposes, including automatic sheet numbering and dithering survey information.

## mdot MicroStation

## General Procedures

Select the **Display** selection in the *Specifications Controlling Printing* dialog and push the **Select Specifications** button (Figure 1-33).

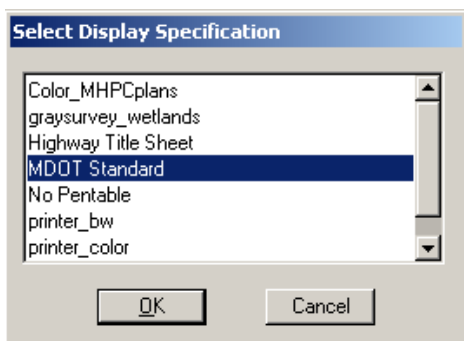


Figure 1-35: Select Display Specification

The default option is “oce” for Metric projects and “MDOT Standard” for U.S. Customary projects (Figure 1-35). This utilizes the *!pentable* and will make sure that sheet numbering happens correctly, survey files dither in our plot, and that grid lines are plotted underneath the proposed design. For explanation of additional pen tables, refer to their breakdown previously outlined in this Chapter.

Now that we have our file list and specifications set, it’s time to save this *Batch Print Job*. On the **Batch Print** dialog, select **File > Save**. This brings up the **Save Job Set File** dialog (Figure 1-36).

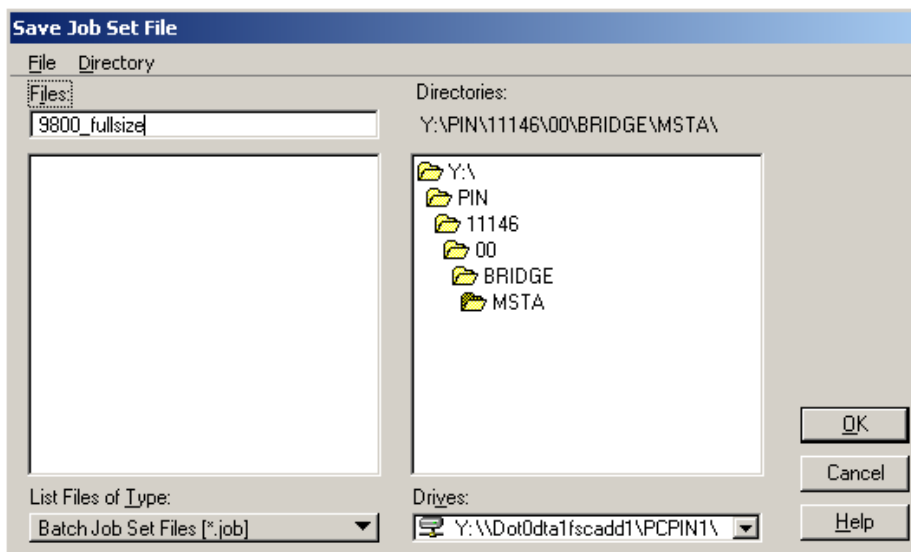


Figure 1-36: Save Job Set File Dialog

To make it easier to use this .job for the duration of the project type in a name that reflects both the sheet size and the plot location. For convenience, keep the .job file in your workgroups \msta directory of your project folder (this should be the default option.) When you’ve named the .job file, press **OK**. You have now successfully created a *Batch Print Job*.

## Printing with Batch Print

Now you can select one or more sheets to be plotted (using Ctrl key to pick and choose or Shift key to select a range). If you want to print all files, push print without selecting any files.

Click the *Print* icon or select **File>Print...**

The *Print Batch* dialog will open (Figure 1-37). If you made a selection, you will be prompted as such or if you did nothing, the all button will be defaulted. If you meant to select all, you can pick it now. After you make a selection, press **OK**.

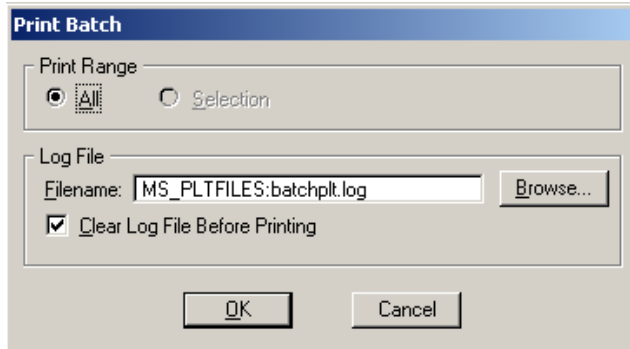


Figure 1-37: Print Batch Dialog

As the plots are being sent to the plotter, the progress will be displayed in another dialog. Wait until this is complete before trying to do anything else in your drawing.

## Printing from an Existing Batch Print Job

Once a *Batch Print Job* has been created for a project, printing is much more streamlined.

To print a file (or a group of files) that is part of a *Batch Print Job*, first open the **Batch Print** dialog from **File > Batch Print/Plot (DOT)**. This option will also automatically browse to your active PIN folder.

Choose the existing .job file (Figure 1-38) you want to print from and press **OK**.

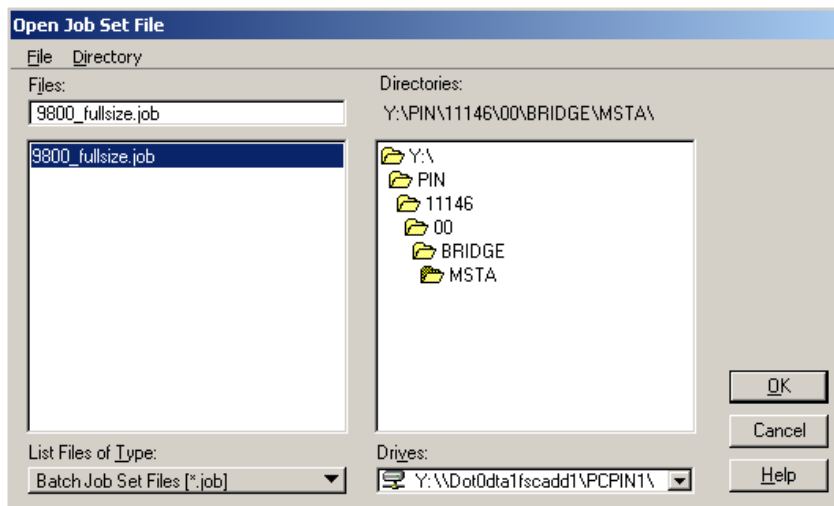


Figure 1-38: Open Job Set Dialog



On the **Batch Print** dialog, select the file or files you want to plot (Figure 1-39).

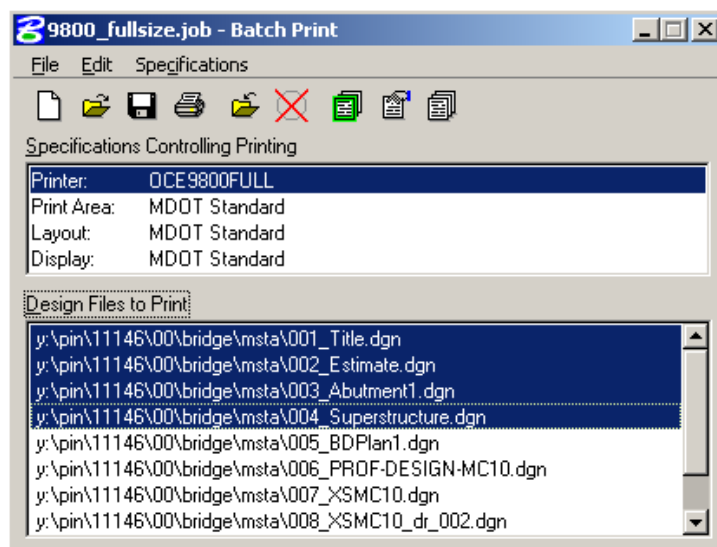


Figure 1-39: Pick Files to Batchplot

If you want to print all files, push print without selecting any files.

From the **Print** dialog, you have the option of printing **All** files, or just the **Selection** of files you made in the previous step (Figure 1-40).

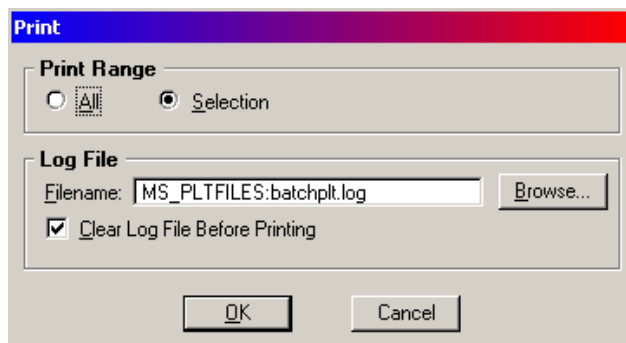


Figure 1-40: Batchplot Selection

Once you make a selection, push the **OK** button. As the plots are being sent to the plotter, the progress will be displayed in another dialog. Wait until this is complete before trying to do anything else in your drawing.

## Batch Print Troubleshooting

*Batch Print* also generates a **Log File** for troubleshooting purposes called *batchplt.log*. This file gets written to the same directory you are plotting from. Open Windows Explorer and browse to this location (i.e. Y:\pin\11146\00\Bridge\MSTA\). Open this file and look for an error statement or for the last file that was actually plotted.

Some common problems are, the file does not contain the *clip boundaries* necessary to define the plot area, or a small filled shape exists on one of your drawings. An example of a small filled shape could be a radius of a side road that is shaded on a Title Sheet. In this

case, select the whole drawing and scale it up 100 times. Now the shape should be able to be plotted. If this doesn't work, consider hatching this area with close line spacing.

## **CREATING LONG PLOTS**

### **Step One**

Make sure you have the **Plan Settings Manager** by choosing **Settings > DOTSetMgrs > Plan Sheet Settings**. This should be autoloading for you.

Right Click anywhere on the *Settings Manager* and choose **Category > Scale** and pick the scale you want to plot to (i.e. 1 in.=25 ft. or 1 in.=50 ft.). From the **USPlan Settings Manager** choose **Long Plots > [5 foot/ 10 foot/ 15 foot/ 20 foot/Plan Sheet HP Plotter/Plan Sheet OCE Plotter]**

❗ *It is important that you remember which border size you used in order to set your paper size when you print.*

🎵 If you are plotting to the OCE9400 plotter, remember that long plots will tie it up for quite a while. Try to limit yourself to 5-foot plots.

### **Step Two: Placing the Cell**

You should see the plot boundary on your cursor. You will place it with two clicks. The first places the origin of the cell. The second allows you to spin the cell around the origin point (Figure 1-41).

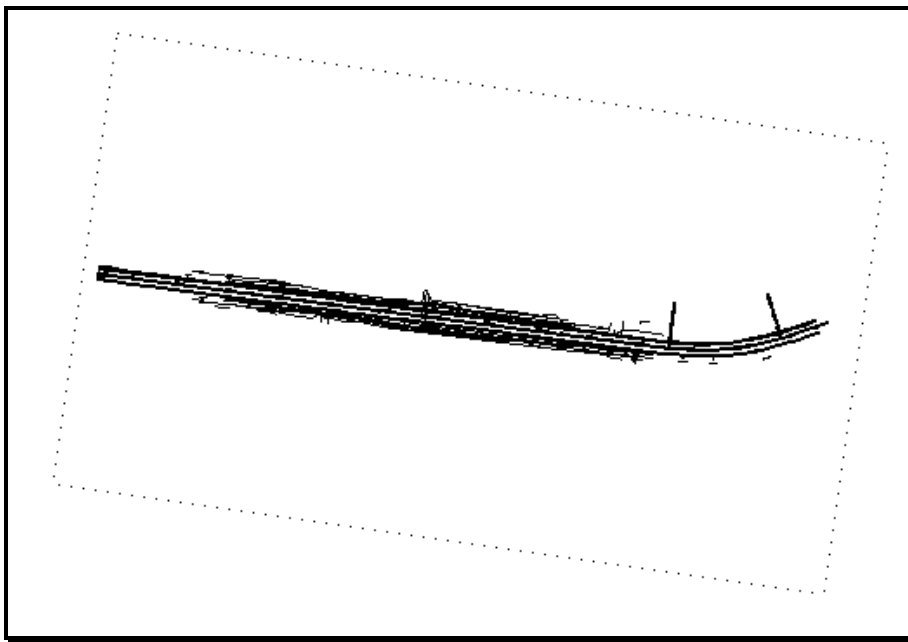


Figure 1-41: Long Plot Boundary

### **Step Three: Rotate View**

Before we can print, we have to rotate our view. Select the **Rotate View** button in the lower left hand corner of window 1 (Figure 1-42).

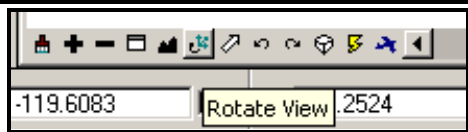


Figure 1-42: Rotate View Button

Select the **3 Points** method from the *Tool Settings Window* (Figure 1-43).

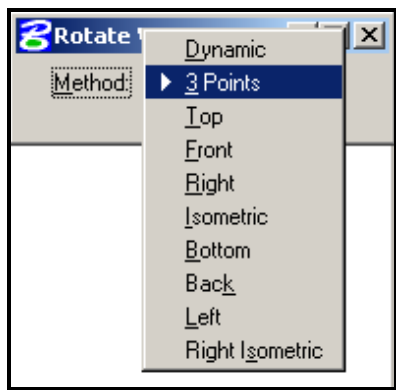


Figure 1-43: 3 Points Method

The “three points” specify the x origin, positive x direction and positive y direction of your view. Choose your first two points by snapping to the two corners of the boundary.

🎵 Always define the two points in a left to right motion.

Your third point defines the positive y direction. Snap to an area of the screen that would be above the left to right selection of the two previous points.

❗ **Picking these points in the wrong order can result in flipping your design upside down. Correct this by Rotating the view again, setting your Method to Top (Figure 1-41).**

It is recommended to rotate your view horizontally as shown in (Figure 1-44).

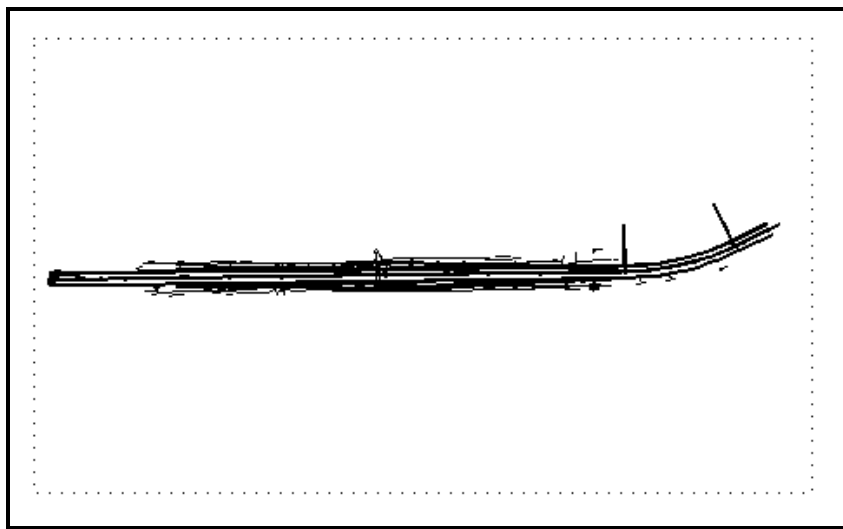


Figure 1-44: Vertical Long Plot View

## Step Four: Printing

Place a fence on the boundary you just rotated.

From the main menu select the **File > Print** option.

In the **Print** dialog select **File> Bentley Driver...** or the **Magnifine** button (Figure 1-45).

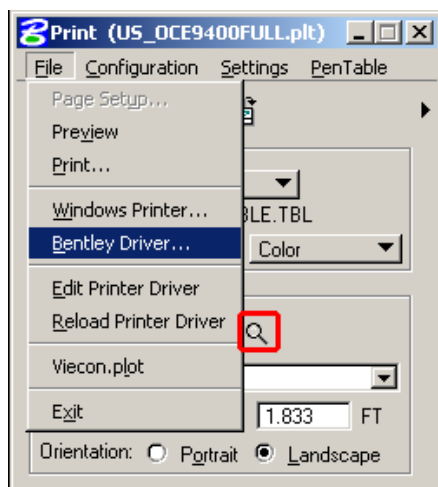


Figure 1-45: Plot Driver on the Print Dialog

You should see a list of plot driver's display for you. Select a driver that matches the type of plot you are sending. Use a driver with “**LONG**” in the name for **5, 10, 15** or **20** foot long plots, or use a driver with “**FULL or HALF**” in the name for “Plan Sheet” size clips.

🎵 The 9400 plotter is on the 3rd level and the 9800 is in the reproduction room in the basement.

The possible plot boundary shapes allow for a maximum plot size of 20 feet. There is no reason to change your **Paper:** size in the **Printer and Paper Size** area of the dialog (Figure 1-46). Leave it set to the defaulted **20FTPLOT** for any size.

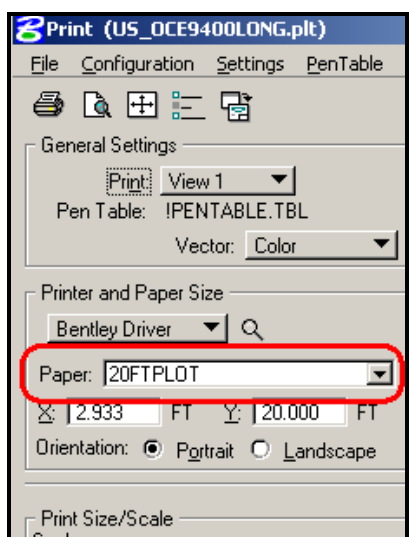


Figure 1-46: Page Setup on the Plot Dialog

# mdot MicroStation

## General Procedures

Based on the rotation you used in your view, it may be necessary to toggle the **Rotate 90** on or off to plot correctly (Figure 1-47).

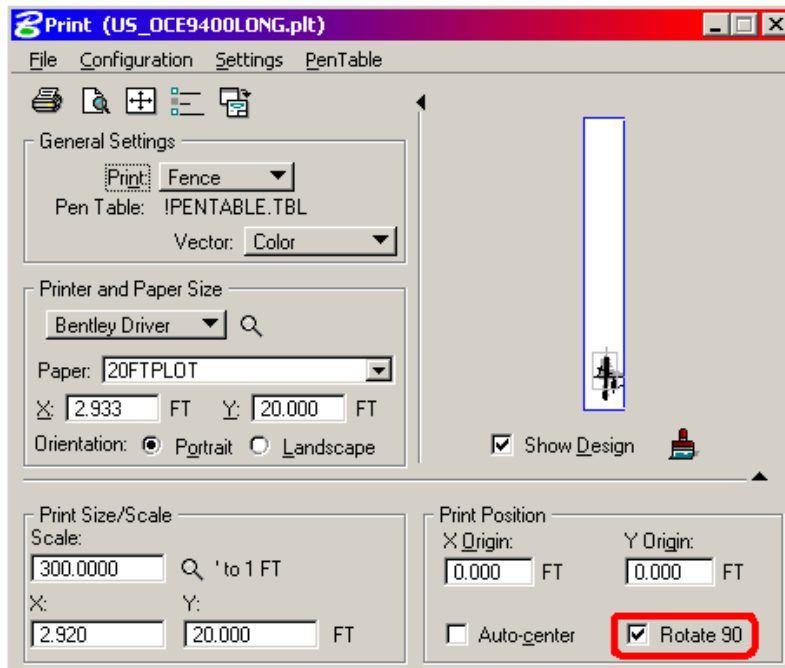


Figure 1-47: Print Rotate 90

- ① *The processing time for long plots will be a little longer than a normal plot but we still need to be prompt in retrieving our plots so that they don't jam the plotter and also doesn't end up all over the floor.*

## FENCE PLOTTING TO SCALE

It is easy to create a scaled print by placing a fence in the area you want. In the following example we are going to print an area to 1 in. = 25 ft.

### Step One: Place Fence

Place a fence around the area you would like to print (Figure 1-48).

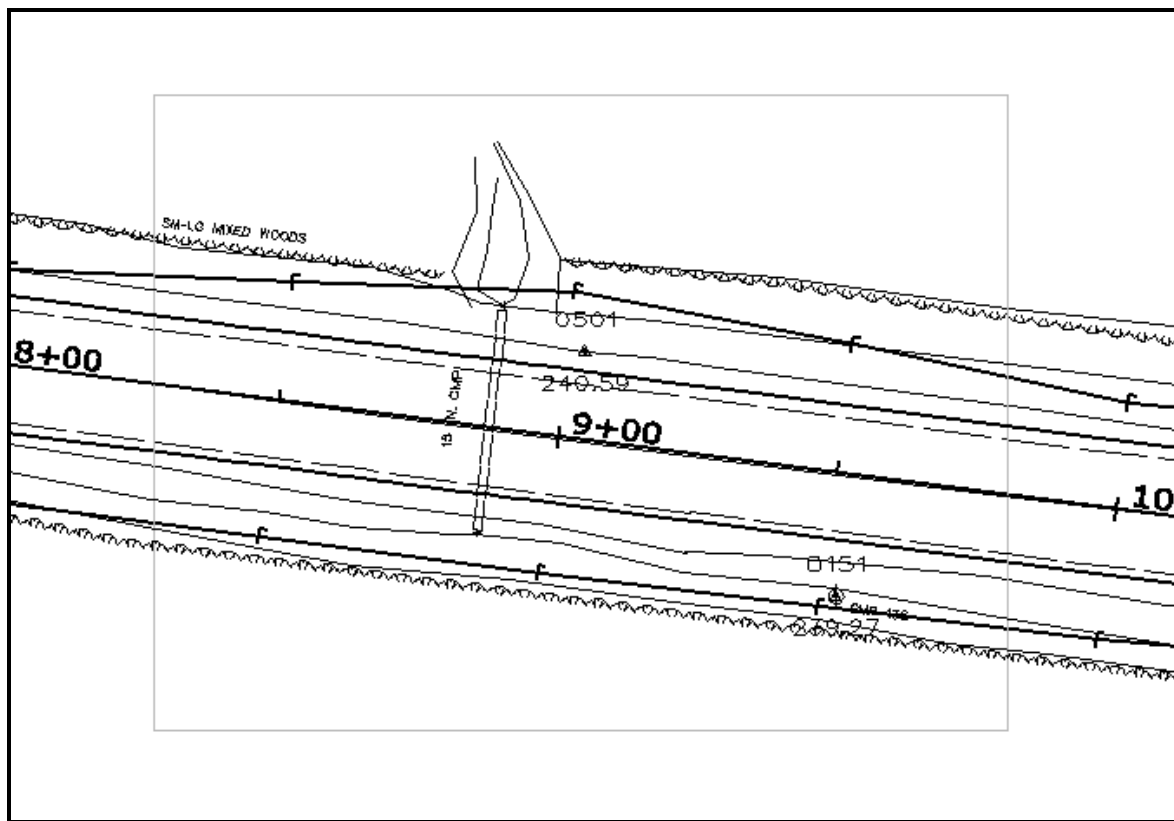


Figure 1-48: Place Fence

### Step Two: Setting Scale

Select **File>Print** from the *Main Menu*. Expand the **Print** dialog so you can see the **Print Size/Scale** area, in the lower left hand corner of the dialog. In (Figure 1-49) we have our **Scale:** options set to “**:’ to 1 FT**”, this means we need to apply an absolute scale of “**300**” ( $12 \text{ in.} \times 25 = 300$ ) to get a 25 scale plot (Figure 1-50). You could change this option to “**:’ to 1 IN.**” by selecting **Settings>Units>IN** from the **Print** menu. This would allow you to set the **Scale:** to “**25**” (Figure 1-51).

♪ You are only allowed to change the scale option to a larger number than what is displayed when opening the *Print Dialog*. If you can not get the desired scaled print you want then consider either making the fence smaller or changing paper size.

If you have set your desired scale then select either the **Print** icon or **File>Print...** from the menu.

# mdot MicroStation

## General Procedures

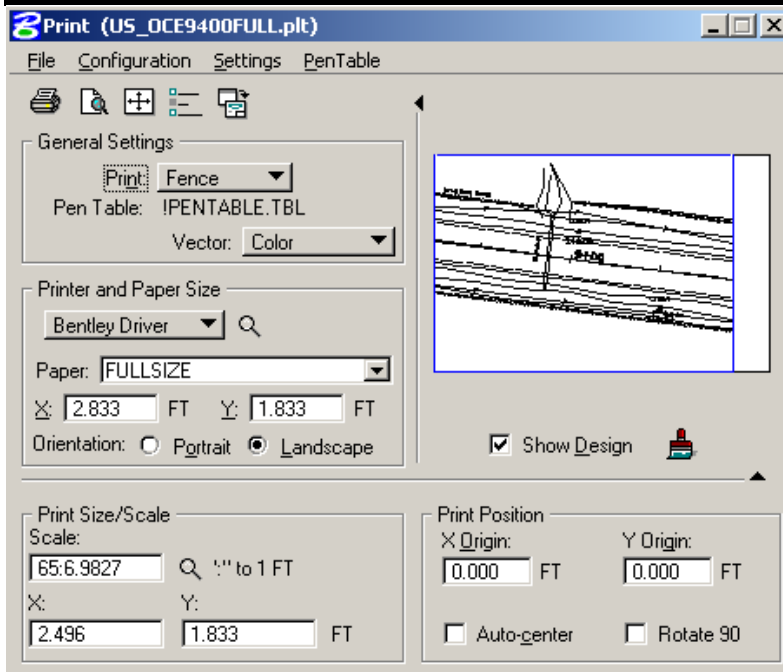


Figure 1-49: Scaled Printing by Fence

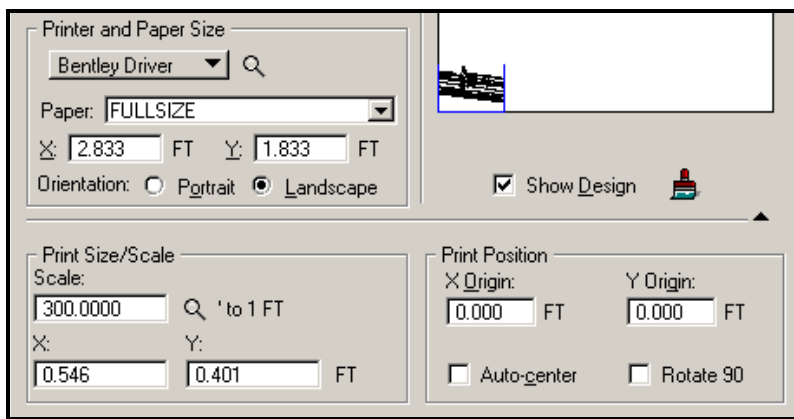


Figure 1-50: Scale Change Master Units

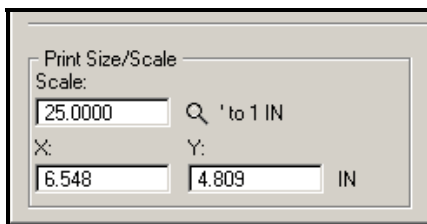


Figure 1-51: Scale Change Sub Units



## **COLOR PLOTTING**

Using a combination of file referencing techniques it's possible to make plans that will print out in full color. It requires that you put all of your color-filled areas in a single file, then reference that file to your border along with your line drawings. Then you have to use our **US\_HPCOLORRoom303.plt** plot driver to make your final printout. This will plot to the **HP1055C** plotter in **Room 303** on the 3<sup>rd</sup> level.

### **File Setup**

Start by making a new file to put your coloring in. It's probably quickest to start by opening the file you want to color, then from the menu, select **File > Save As** or by selecting **File>Make Sheetz**. Name your file beginning with a "c\_" prefix to point out that the file is color.

## **PLOTFILE PLOTTING (.PLT)**

MicroStation can produce plot files that can be sent or received by or from a consultant in .plt or 000 file extensions. Currently, the OCE9800 is the only queue that is available from the network. Simply map a drive letter or browse through Network Neighborhood and place these files in the \\Dot0dta1fscadd1\Plot9800\ folder.

Another option is to use OCE Job Director as a plotting solution. This handles plot files optimally with a variety of options including full-size, ½ size and supports multiple copies. This option plots them in reverse order saving the need for manual collation.

✓ *Refer to instructions on using the OCE Job Director on page15-32.*